

NOTE

New Records of Fruit Fly Parasitoids (Hymenoptera: Braconidae, Figitidae, Pteromalidae) for La Rioja Province, Northwestern Argentina

La Rioja Province is located in the southern part of northwestern Argentina, between 27°43' and 32°00' south latitude and 65°25' and 69°40' west longitude. The fruit-producing and horticultural areas include about 50,000 hectares restricted to irrigated valleys isolated from each other by wide desert plains or by high mountains where basically no native host plants of economically significant fruit fly species are found. The main fruit products are olive, grape, walnut, quince, fig, peach, plum, apricot, pear, and apple. *Ceratitis capitata* (Wiedemann) or Mediterranean fruit fly or medfly, and *Anastrepha fraterculus* (Wiedemann) or South American fruit fly, are the only economically important tephritid species present in the fruit producing valleys. One of these valleys, the Antinaco-Los Colorados Valley, is situated in the northwestern region of La Rioja Province (28°49'–29°53'S and 67°09'–67°41'W). The total cultivated area in this valley is about 8,200 hectares and it is restrained to zones where irrigation is possible. The altitude ranges from 1,000 to 1,500 m. The climate is temperate-arid, with –9°C of absolute minimum temperature in June–July (winter), and 42°C of absolute maximum temperature from November to February (summer). The rainy season occurs from December to March and averages 189.1 mm annually. Both *C. capitata* and *A. fraterculus* populations were detected in 1986 in this valley by fruit sampling and fly adult trapping activities (Nasca et al. 1996, Frissolo 1999).

The purpose of this note is to report the hymenopterous parasitoid species reared from *C. capitata* and *A. fraterculus* pupae in the Antinaco-Los Colorados Valley, La Rioja Province, during the 1988–1990 summer seasons. The survey of the parasitoids

reported here was undertaken as part of a population study of fruit flies of economic importance in La Rioja. Prior to this report, only *Aganaspis pelleranoi* (Brèthes), a fruit fly eucoiline parasitoid, had been recorded from *C. capitata* in La Rioja (Wharton et al. 1998).

Ripe fruits were harvested and transported to the laboratory and placed in styrofoam containers with damp sand in the bottom as a pupation substrate. *Ceratitis capitata* and *A. fraterculus* pupae were recovered weekly and placed in closed styrofoam vials until all flies and/or parasitoid adults emerged. I identified the adult insects (flies and parasitoids). Voucher specimens are placed in the insect collection of the Fundación Miguel Lillo, San Miguel de Tucumán, Argentina.

A total of 69 parasitoids representing three species [*A. pelleranoi* (Hymenoptera: Figitidae, Eucoilinae), *Doryctobracon areolatus* (Szépligeti) (Hymenoptera: Braconidae, Opiinae), and *Pachycrepoides vindemmiae* (Rondani) (Hymenoptera: Pteromalidae, Pteromalinae)] were recovered from 25,310 *C. capitata* and *A. fraterculus* pupae which were obtained from 642 fruit fly host fruits [198 figs (*Ficus carica* L., Moraceae), 100 quinces (*Cydonia oblonga* Miller, Rosaceae), 200 peaches (*Prunus persica* (L.) Batsch, Rosaceae), and 144 plums (*Prunus domestica* L., Rosaceae)]. Both *A. pelleranoi* and *D. areolatus* are larval-pupal parasitoids, while *P. vindemmiae* is a pupal parasitoid. Because puparia of *C. capitata* and *A. fraterculus* were not sorted, it was impossible to determine which tephritid species was parasitized by which parasitoid species.

A new fruit fly parasitoid record for La Rioja Province is *D. areolatus*. On Febru-

ary 17, 1988, one female of *D. areolatus* was recovered from infested figs, and on December, 7–15, 1989, 3 females and 1 male, and 1 female and 1 male were recovered from infested peaches and plums, respectively. This parasitoid species has been previously recorded in the provinces of Misiones (25°30'–28°10'S and 53°38'–56°03'W), in the northeastern subtropical rainforest of Argentina, or Paranaense forest (Ogloblin 1937), and Tucumán (26°05'–28°01'S and 64°28'–66°13'W), in northwestern subtropical rainforest of Argentina, or Yungas forest (Ovruski 1995). The known distribution range of *D. areolatus* is thus extended nearly 400 km southward to a different region which is geographically isolated from the other areas where this parasitoid species has commonly been recorded in Argentina.

Between February 3 and March 3, 1988, and between February 2 and March 5, 1989, 25 females and 12 males, 6 females and 3 males, and 5 females and 3 males of *A. pelleranoi* was recovered from infested figs, quinces, and plums, respectively. Moreover, 16 females and 6 males of *A. pelleranoi* were obtained from infested peaches between December 7, 1989 and January 6, 1990.

Both *A. pelleranoi* and *D. areolatus* are typical fruit fly parasitoid species mainly associated with the genus *Anastrepha* and widely distributed in tropical and subtropical rainforest of the Neotropical Region (Ovruski et al. 2000). A probable explanation for the presence of *D. areolatus* and *A. pelleranoi* in the Antinaco-Los Colorados valley is via their introduction in fruit infested with *A. fraterculus* or *C. capitata* larvae parasitized by either the opiine or the eucoiline parasitoid transported from northern Argentina. Thus, the subtropical rainforest regions of northeastern and northwestern Argentina, with large numbers of wild host plants, present throughout the year, may provide fruit fly reservoirs for new introductions into the isolated fruit producing valleys of La Rioja. Given the

extremely harsh climatic conditions of the Antinaco-Los Colorados valley, where extensive commercial fruit crops, smallholder farming, and small family fruit orchards are concentrated in irrigated oasis broadly separated by desert areas and high mountains, it is unlikely that both *A. pelleranoi* and *D. areolatus* have spread south naturally. Although *C. capitata* was recorded from cultivated plants of *Opuntia ficus-indica* (L.) Miller (Cactaceae) in La Rioja, there is no evidence of the medfly attacking native species belonging to the genus *Opuntia* Miller in the field (Nasca et al. 1996). Furthermore, the native parasitoids of *Anastrepha* Schiner appear to be poorly adapted to medfly. For example, from ca. 20,000 *C. capitata* puparia recently collected from several fruit species in the Yungas forest, it only was obtained a small number of *A. pelleranoi* (S. Ovruski, P. Schliserman and M. Aluja, unpublished data).

Another new fruit fly parasitoid record for La Rioja Province is the pteromalid *P. vindemmiae*, a pupal parasitoid of cyclorhaphous Diptera. A total of 11 specimens were recovered from figs (4 females and 2 males) and quinces (2 females and 3 males) between February 17 and March 8, 1988. Probably, *P. vindemmiae* could be obtained from figs and quinces because fruit fly larvae pupated inside the fruits before they were sampled and transported to the laboratory. This cosmopolitan and polyphagous parasitoid species was introduced and released in Buenos Aires, Entre Rios (Turica et al. 1971), Tucumán (Nasca 1976), and Cordoba provinces (Fischetti et al. 1978) for fruit fly biological control between 1968 and 1973. However, *P. vindemmiae* was previously reported in Mendoza, Tucumán and Buenos Aires under other scientific names, such as *P. dubius* Ashmead and *P. tucumanus* Blanchard (DeSantis 1967, Ovruski and Fidalgo 1994).

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